U.S. Army Audit Agency

Activity-Based Management

U.S. Army Forces Command
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DEPARTMENT OF THE ARMY
U.S. ARMY AUDIT AGENCY
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Commander
U.S. Army Forces Command

This is an information report on our ongoing partnership with U.S. Army Forces Command and its installations to promote the use of activity-based management throughout the command. Because the methodology we used may be of benefit to other Army managers in transitioning to activity-based management, the Commander agreed that we may distribute it to other installations.

These are the report's key sections:

- The Results section describes various techniques and offers several examples of how some Forces Command installations have used them to achieve greater efficiency or reduce their costs.

- Annex A lists Forces Command installations and indicates which installation directorates have activity-based costing models in place.

- Annex B lists others receiving copies of this report.

- Annex C lists the review team.

This report isn't subject to the command-reply process that Army Regulation 36-2 prescribes.

We appreciate the opportunity to partner with your command for this effort. We commend your Headquarters and installation staffs on their

proactive leadership to implement activity-based costing/management throughout the command.

FOR THE DEPUTY AUDITOR GENERAL:

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RESULTS

PURPOSE

The purpose of this report is to share information about how some U.S. Army Forces Command installations are using their activity-based costing (ABC) models as a basis for cost management actions. The general techniques and accompanying examples we describe in this report have the potential to produce cost and service benefits– not only at the installations at which they were identified, but also at other installations that may choose to employ them.

Activity-based costing is viewed by Forces Command's management primarily as a means for helping command cope with funding reductions already made, as well as those programmed for coming years– while incurring the least possible impact on the quality and timeliness of the delivery of services to its customers. Activity-based management uses data drawn from the models as a basic tool for achieving better efficiency.

RESULTS IN BRIEF

Activity-based costing models are in place for most of Forces Command's base support functions. Forces Command and its installations are to be commended for having one of the most wide-ranging activity-based costing implementations.

Selected directorates at several installations have started implementing activity-based management. Installation managers we supported generally showed much interest in both the techniques used and the results achieved. However, much more still needs to be done.

Starting at page 15, we discuss what future actions we believe Forces Command and its installations can take to continue their transition to activity-based management.

The value of activity-based management is realized only when managers actually use the information to take action and make decisions or improvements. The goal is to internalize activity-based management as a better way of doing business and making more informed decisions without viewing it as one more new requirement. Integrating activity-based management into the organization's culture and infrastructure takes time and special effort by senior leaders to link it to the organization's strategic priorities, information systems, core competencies, performance measurement, and other improvement initiatives.

BACKGROUND

In general, activity-based costing is based on the concept that it is the demand for products or services (cost objects) that causes activities (work) to be done and that it is doing activities that actually consume the organization's resources. Activity-based management (ABM) focuses on an organization's activities to see that they have value and are done efficiently.

Activity-based costing within Forces Command had its genesis at five installations–Forts Bragg, Campbell, Drum, Polk and Stewart. Recognizing the potential benefits of such an approach to cost management, Forces Command began implementing activity-based costing throughout the remainder of its garrisons–Forts Carson, Hood, Irwin, Lewis, McPherson, and Riley.

As of September 1998, Forces Command had activity-based costing models in place at each of its 11 major installations for 4 major functional directorates. These are the directorates of logistics; public works; personnel and community activities; and plans, training, and mobilization. These four directorates collectively consume about 83 percent of Forces Command's base support dollars.

By April 1999, Forces Command will also have the Directorate of Information Management model in place at all 11 installations, thus increasing the percentage of covered base support resources to nearly 90 percent. Models for three other functional areas were put in place at the five initial installations, but were made optional for the other installations.

PARTNERSHIP WITH U.S. ARMY FORCES COMMAND

We have continued our partnership with Forces Command to implement activity-based/management costing at its garrison operations.

We reported our initial efforts concerning activity-based costing within Forces Command in Audit Report: AA 98-710, Activity-Based Costing, XVIII Airborne Corps, dated 5 December 1997. It covered work started in April 1996 and addressed mostly the efforts and lessons learned while putting the models in place within the Corps. Since then, Forces Command has expanded the project to include all of its installations.

Although we facilitated the updating (repopulation) of selected models at some installations, most of the work we performed this time and have reported in this report focuses on how installations can use the information contained in the models to support activity-based management. The installations we supported– Forts Campbell, Hood, Polk, Riley, and Stewart– requested our assistance and had their personnel participate in each effort. Personnel from Forces Command's Cost Models Team also supported several of these efforts.

WHAT IS ACTIVITY-BASED MANAGEMENT?

John Miller, a nationally recognized authority, describes activity-based management as ". . . a tool developed to support the process-based organization by providing information and data needed to plan, manage, control, and direct the activities of a business to improve processes, products, and services, to eliminate waste, and to execute business operations and strategies."

Activity-based management focuses on an organization's activities to see how much they cost, how much value they have to the overall purpose of the organization, and whether they are being performed in an efficient manner. The goal of activity-based management is to deliver the highest possible quality products/services to the customer at the least possible cost.

Perhaps the most common technique used in most activity-based management applications is the Pareto analysis. This involves the ranking of activity costs from highest to lowest and then focusing on the higher cost activities. These higher cost activities are then subjected to various other techniques, such as more in-depth analyses of the reasons for the costs (cost driver analysis) and comparisons to costs incurred by others performing similar activities (benchmarking).

The uses of activity-based management and potential benefits of applying activity-based management techniques at an installation are quite varied. They include:

- Determining the true cost of products/services that are particularly useful for those provided on a reimbursable basis.

- Serving as the basis for initiating reductions in activity costs or as a basis for increasing efficiency or improving performance.

In his book on activity-based management, John Miller states:

> The value and benefit of ABM can only be measured by the decisions, actions, and improvements that result because people took, or were motivated to take, based on the knowledge and information provided. Implementors of ABM systems should be warned that all efforts to implement an ABM system will be wasted if no one uses or takes action on the information provided.

WHAT WE DID

In this section, we discuss these three areas:

- Applying activity-based management techniques.
- Updating model data.
- Taking actions in the future.

Applying Activity-Based Management Techniques

The primary emphasis of our support was to demonstrate to installation personnel at various levels the methodologies and various techniques that they can use to conduct activity-based management as a basis for improving or streamlining their existing activities.

Generally, the methodology we followed at each location included:

- Showing personnel how to do a Pareto analysis to identify the high-cost activities.
- Consulting management to determine the activities on which to focus activity-based management efforts.
- Using the model to generate various types of management reports, such as contribution reports that indicate which activities contribute how much cost to what products or services.

With assistance from key personnel, we then:

- Identified and analyzed major cost drivers for selected activities.
- Benchmarked the cost of products and services to other installations and private organizations.
- Performed value analyses to identify non-value-added activities for elimination or reduction.

We also identified other techniques that installation personnel can use to produce increased efficiencies or achieve cost benefits.

Cost Driver Analysis

With the assistance of directorate managers, we identified primary cost drivers for several of their higher dollar activities. A cost driver is defined as any factor that causes a change in the cost of an activity. Cost drivers indicate the root cause of activity cost and are valuable because they point people toward the actions needed at the root cause level. Moreover, there usually are multiple drivers associated with any given activity– some of which can be controlled and others that can't. Here are some of the primary cost drivers identified for two high-cost activities at one installation's Directorate of Public Works:

Activity	Amount	Primary Cost Drivers
Perform family housing vacant quarters maintenance	$1.7 million	Type of contract Contract specifications
Provide unaccompanied personnel housing maintenance	$1.0 million	Denied access to facility on response

Once the managers identified their activities' primary cost drivers, the next step was to examine the drivers and determine what actions, if any, the managers could take to control those drivers over which they have responsibility. Here are some of the analyses that we applied:

Type of Contract. According to family housing managers, one of the primary factors driving cost was the type of contract used– a cost-plus-award-fee contract. So, we contacted family housing managers for three other installations, in addition to a private contractor operating some Army-leased housing. We gathered information about their costs and

times taken to perform the activity "perform vacant quarters maintenance," as well as the types of contracts being used. The following table shows the results of that comparison.

Vacant Quarters Maintenance

Installation	Average Number of Maintenance Days	Average Cost of Maintenance	Type of Contract
Subject Installation	10	$930	Cost-Plus-Award Fee
Alternate Installation "A"	7.5	$280	Fixed-price
Alternate Installation "B"	7.5	Not Available	Fixed-price
Alternate Installation "C"	5	$450	Fixed-price
Contractor-operated Installation "D"	3	$300	Fixed-price

Managers at the other installations told us that their customers' satisfaction with the family housing maintenance was very high. Accordingly, we advised the managers at the subject installation to consider changing the type of contract awarded in the future. They told us that they would use a fixed-price contract for FY 99.

Housing managers identified some of the contract specifications as another cost driver. The current contract allows the contractor to perform vacant quarters maintenance without any limit on the total number of days taken. As a result, the average elapsed time taken at the subject installation was 10 days– significantly more than taken at other installations. These installations generally limited their contractors to a maximum elapsed time of 7 days to perform vacant quarters maintenance. Housing personnel said that they will change the specifications in their next contract to limit the contractor to a maximum of 7 elapsed days to perform vacant quarters maintenance.

Building Maintenance. According to the FY 97 model, the subject installation spent about $1.0 million of in-house resources performing

building maintenance. According to maintenance division personnel, one of the factors contributing to this cost was that shop personnel sometimes weren't able to gain access to facilities when responding to service orders. The chief of the division estimated that this occurred on about 30 percent of the service calls for work performed on barracks. This increases the number of hours required to perform each service order. The directorate needs to emphasize this condition in its review and analysis sessions and discuss possible solutions. Because prospective bidders likely will not be factoring in an allowance for delayed access to buildings, they will probably tend to bid fewer hours than would be used in the government estimate to do the same work. The directorate needs to eliminate this non-value-added activity so that the most efficient organization can be more competitive with commercial sources. In addition, the directorates should consider adding a new activity in the model called, for example, "Awaiting Access" to capture this non-value-added time.

Directorate managers at all Forces Command installations need to identify the primary cost drivers for their high-cost activities and take appropriate actions, whenever possible, to gain control over them.

Benchmarking

Benchmarking is a basic process that involves comparing the methods (activities) employed by organizations that produce similar products and services. It is a tool often used in concert with cost driver or activity analysis. Benchmarking is an excellent tool for identifying best business practices and measuring process improvements. Comparisons can be made to both internal and external organizations. Once the costs of comparable activities are established, managers need to analyze the factors contributing to any significant differences. Here are three examples:

- The model for the Directorate of Personnel and Community Activities at one installation reported incurring a cost of about $6,300 a child for the activity "provide developmental childcare." Contacts with several private child care organizations showed that their costs for each child ranged from only about $3,200 to $3,600. Once the managers became aware of this apparently significant cost disparity, their next step was to determine what cost drivers might be contributing to the disparity. The resulting analyses showed two factors– Army regulatory requirements (which mandate the ratio of caretakers to children) and labor rates paid to caretakers. Once the managers identify these factors, they then should investigate the basis for the Army regulatory requirements concerning the caretaker-to-children ratios and also the basis for

the pay rates of the Army caretakers. Analyses of these and other cost drivers are in still in process, but benchmarking was the technique that indicated the need for the analysis.

- The model for a Directorate of Information Management at one installation reported activities related to providing copier, printing, unit mail, and output services totaling about $1.7 million annually. However, at two other installations, the total cost of these activities ranged from only about $394,000 to $553,000. Differences such as these should spark the directorate's interest in determining why such costs are significantly different and determine whether cost savings can be realized.

- At one installation's Directorate of Public Works, borrowed military manpower was used to perform the activity "improved grounds maintenance." The annual cost was about $1.1 million. We contacted two other installations and found that they used seasonal and part-time employees to perform grounds maintenance functions. With the assistance of the directorate's grounds manager (who estimated the quantity and grade structure of the required employees), we concluded that using seasonal and part-time civilian or contractor employees would reduce the total annual cost of improved grounds maintenance by about $400,000. This would also free up these military personnel to perform more mission-related activities. Furthermore, continued use of military personnel instead of seasonal and part-time personnel who cost less could also result in the government's estimate used for a pending commercial activity review to be much higher.

Benchmarking can be a very successful tool. Directorate managers need to review the cost of their activities and contact their counterparts at other installations to determine if there are any significant cost discrepancies. Where significant differences exist, managers need to determine the reasons for the differences and where improvements can be made.

Functional managers at Forces Command can help facilitate the benchmarking process by providing the impetus for comparing the costs for the selected activities. While Forces Command shouldn't make the actual analyses, it could encourage and facilitate cost comparisons and discussions about activities between installation directorates. This should lead to determinations among the installations themselves as to why some installations may be providing certain products/services more economically than others.

For example, Forces Command's Morale, Welfare and Recreation Division personnel gathered and summarized cost data for selected activities from

the FY 97 Directorate of Personnel and Community Activities models. They provided the summaries to installation directorates to create communication among the directorates with the eventual goal of sharing best business practices.

Value Analysis

Some activities add value to products/services, while others don't. We performed value analyses when analyzing activities to determine their contributions to meeting customer expectations. In many cases, personnel need to decompose (identify and analyze sub-elements of) activities to perform value analyses. Here are two examples:

- At one installation's Directorate of Public Works, managers identified that about 30 percent of the $148,000 spent for the activity "conducting inspections for environmental safety violations" was used to prepare various forms, memorandums, and correspondence. The managers indicated these tasks were of little or no value to the directorate's customers. Managers thought that, if the administrative workload was reduced, more time could be devoted to conducting the safety inspections themselves. At the time of this review, only about 30 percent of the required safety inspections actually were done on time.

- Another installation's Directorate of Logistics reported that about $190,000 was consumed by the activity "provide repair parts." Managers decomposed this activity and found that about 10 percent of the activity's time was spent processing warehouse denials– instances where the part ordered by supply personnel is reported as being on hand, but is later found to not be on hand. This type of rework provides no real value to the directorate's customers. Managers should determine what factors contribute to the need for rework and take corrective actions.

Installation managers should do value analyses to optimize those activities that add value and support customer needs, and eliminate or minimize non-value-added activities.

Other Techniques

The preceding paragraphs illustrate the use of some activity-based management techniques we used at various installations.

We also assisted a directorate looking to improve its Army Community Services processes. Using "process mapping"– a technique where the various elements of a process are identified and recorded in a manner that graphically indicates the relationships existing between all of the activities that make up the process– we were able to identify:

- Redundant activities and tasks for consolidation.

- Services that didn't provide adequate customer value to warrant continuing.

This will enable managers to streamline some of its community services processes while improving customer service. The effort will also serve to help identify the most efficient organization (MEO) for community services that then can be used during commercial activity studies.

Managers everywhere can employ not only these techniques, but also several others to produce increased efficiency or achieve cost benefits. In the paragraphs that follow, we discuss the use of two other such techniques.

Performance Measures. Performance measures are designed to provide information on how well activities were performed. The cost of activities is only one aspect of performance measurement. For example, in addition to cost, directorate managers should monitor both quantitative and qualitative measures, such as repair cycle times for vehicular maintenance, the number of violation notices for environmental projects, and customer satisfaction for completed service orders. Managers should develop performance measures that focus on the quality, cycle time, and customer satisfaction of the activities and report results against them to monitor performance for continuous improvement.

Activity-Based Budgeting. Directorates can also do activity-based budgeting to plan and control the expected activities of an organization. For example:

- Define activity workloads (expected activity output quantities) for a budget period.

- Establish each activity's budgeted cost per output. (The manager might establish a 10-percent efficiency goal for budget period, thus reducing the cost per output by 10 percent.)

- Determine budget resource requirements. (Multiply output quantity and cost per output.)

– Compare budget with actual and plan changes as necessary.

Updating Model Data

Another assistance that we provided to various installations was to facilitate the repopulation of some of their existing models. Forces Command currently requires that installation models, as a minimum, be updated with the prior fiscal year's resource data by January of the next year. Because some installations encountered difficulties, we helped them.

Ideally, the task of repopulating an activity-based costing model should eventually become as seamless and efficient as possible. In this regard, Forces Command has begun some promising initiatives. First, it planned a series of workshops for October through December 1998 where aggressive steps will be taken by the current implementation contractor to refine and simplify the four largest models. One of the contractors has developed a computer program that promises to automate the resource and driver data gathering and recording process. Moreover, steps have been initiated to establish interfaces between various standard Army systems, such as the Integrated Facilities System and the Standard Army Maintenance System.

Further, installation personnel should look to update the models more often. More frequent updates (for example, quarterly) would:

- Give key personnel more up-to-date cost and performance information with which to manage and make decisions.

- Require sustainers to use the models more often, thus helping them to retain their skills and knowledge.

Taking Actions in the Future

Our work at these installations showed several areas for potential improvements. In today's Army environment of budget reductions and ongoing commercial activity studies that leads to outside competition, it is crucial that directorate managers become more actively involved in cost management. Activity-based management is an important tool that managers can use to monitor the cost of their operations. Eventually, it should become a valuable information system that managers can rely on to make cost-based management decisions.

Our prior report discussed the transition to activity-based management. That transition is under way yet much remains to be done. Many of the suggestions for action set forth in the prior report are still valid. In that report, we stated that managers must be willing and able to use the information obtained from the models to improve operations. We suggest that senior installation leaders (installation commanders, garrison commanders, and directors), directorate managers, and even the workforce itself take the following actions--some old, some new, and some revised--to ensure that activity-based management occurs**.**

Senior installation leaders need to:

1) Set expectations for improvement and hold managers accountable for identifying improvement goals, measuring performance, and reporting on progress.

2) Commit to a continual educational process for all levels of the workforce including senior leadership.

3) Encourage a safe environment for taking risks. Recognize and reward those who are willing to make hard decisions, take action, and improve operations.

4) Empower and involve employees in making process improvements.

5) Clearly communicate organizational values, mission priorities, strategic goals, customer focus, and general state of organizational health down to all levels of the workforce.

Directorate managers need to:

1) Focus on processes and activities to solve business problems. Are resources consumed by the right activities? Which activities are most important strategically? Which activities contribute the least value?

2) Determine what the cost drivers are and analyze for efficiency.

3) Establish meaningful performance measures for their operations by using benchmarking to determine the measures.

4) Compare with other installations and seek out best practices.

5) Conduct activity analyses to determine whether activities can be performed more efficiently.

6) Be willing to make tough decisions and take action.

All employees need to:

1) Examine activities they perform for streamlining opportunities.

2) Identify lesser value activities that can be eliminated.

3) Identify areas that can be improved.

Functional proponents at Forces Command Headquarters can help installations implement activity-based costing by:

- Reviewing models and recommending improvements whenever necessary.

- Initiating actions to reduce the level of effort necessary to populate and maintain models including:

    - Reduction in the level of detail in the models.

    - Continuation of the use of a computer program developed by one of the modeling contractors which automates the entry of resource data.

    - Promotion of actions currently under way to link the models to various automated systems, such as the Integrated Facilities System and the Standard Army Maintenance System.

- Establishing forums for benchmarking activity costs to initiate best business practices among its installations, as well as reporting results and success stories.

Now that the laborious task of implementing the models is generally done, its time for Forces Command Headquarters to see that its installation functional directorates devote their available resources to using the data contained in the activity-based costing models to manage their activities and the related costs in a professional manner.

Once the models have been simplified and less time is needed to populate the models, managers will be able to devote more time to applying activity-based management techniques to their high-cost activities.

That's when efficiency improvements should begin to be noticed. This will enable the directorates to continue to streamline their existing activities and processes, as well as develop the most efficient organizations for performing those functions undergoing commercial activity studies.

ANNEXES

ABC MODELS IN PLACE
AT U.S. ARMY FORCES COMMAND INSTALLATIONS

Installation	DOL	DPCA	DPTM	DPW	AG	DOC	DOIM	DRM
Bragg	X	X	X[1]	X	X	X	X	X
Campbell	X	X	X[1]	X	X	X	X	X
Carson	X	X	X	X[2]			X[3]	
Dix		X[4]						
Drum	X	X	X[1]	X	X	X	X	X
Hood	X	X	X	X	X	X	X[3]	X
Irwin	X	X	X	X			X[3]	
Lewis	X	X	X	X	X[5]	X[5]	X[3]	X[5]
McCoy		X[4]					X	
McPherson	X	X	X	X	X[5]		X[3]	X[5]
Polk	X	X	X[1]	X	X	X	X	X
Riley	X	X	X	X[2]			X[3]	
Stewart	X	X	X[1]	X	X	X	X	X

Legend:

DOL – Directorate of Logistics
DPCA – Directorate of Personnel and Community Activities
DPTM – Directorate of Plans, Training and Mobilization
DPW – Directorate of Public Works
AG – Adjutant General
DOC – Directorate of Contracting
DOIM – Directorate of Information Management
DRM – Directorate of Resource Management

1 Airfield operations documented in a separate model.
2 Directorate of Environmental and Safety documented in a separate model.
3 Model scheduled to be put in place by FY 99.
4 Morale, Welfare, and Recreation portion only.
5 Model to be independently developed during FY 99.

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- Fort McCoy
- U.S. Army Garrison, Fort Pickett
- Joint Readiness Training Center and Fort Polk
- Fort Riley
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